CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1.   (Currently Amended) A wireless protection system for establishing high availability communications, comprising:

a wireline link processor for connecting a user site to a network provider site over a broadband access connection;

a wireless link processor for connecting said user site and said network provider site over a backup connection when said broadband access connection is suffering from performance impairment;

means for monitoring operation of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

means for switching user traffic received over a user interface from said wireline link to said backup connection according to said fault signal;

means for switching back said user traffic from said backup connection to said wireline link after said fault signal has been cleared;

means for switching back said user traffic from said backup connection on said wireline link at specific intervals and determining whether said fault signal has been cleared;

means for filtering said user traffic at said user site on receipt of said fault signal for selecting, from said user traffic, overload traffic to be carried over said backup connection; and

means for merging said overload traffic back into said user traffic at said network provider site.

2.   (Currently Amended) The system of claim 1, wherein said fault signal indicates one of a failure, performance degradation and overload of said wireline link.

3.   (Currently Amended) The system of claim 2, further comprising at said user site means for filtering said user traffic on receipt of said fault signal for selecting high-priority traffic to be carried over said backup connection.

4.   (Currently Amended) The system of claim 2, further comprising link filtering means at said network provider site for selecting high-priority traffic to be carried to said user site over said backup connection on receipt of said fault signal.

5.   (Currently Amended) The system of claim 2, further comprising:

means for filtering said user traffic at said user site on receipt of said fault signal for selecting from said user traffic, said high priority traffic to be transmitted over said backup connection; and

network link filtering means for filtering said user traffic at said network provider site for selecting high-priority traffic to be carried to said user site over said backup connection on receipt of said fault signal.

6.   (Original) The system of claim 1, wherein said fault signal indicates an overload of said wireline link.

7.   (Canceled)

8.   (Original) The system of claim 6, further comprising:

network link filtering means for filtering said user traffic at said network provider site on receipt of said fault signal for selecting said overload traffic; and

a network provider reconfiguring mechanism for separating said overload traffic from said user traffic and routing said overload traffic to said user site over said backup connection.

9.   (Original) The system of claim 1, wherein said means for switching is a data packet switch for communicatively coupling said user interface to one of said wireless link processor and said wireline link processor under control of said means for monitoring.

10.   (Original) The system of claim 1, wherein said means for switching is one of a router and an OSI layer 3 switch.

11.   (Original) The system of claim 1, wherein said means for switching is an OSI layer 2 Ethernet switch.

12.   (Original) The system of claim 1, wherein said means for switching is a physical layer media switch.

13.   (Currently Amended)   A method for protecting a wireline access link, comprising the steps of:

transmitting user traffic between a user site and a network provider site in a broadband access connection carried over said wireline link;

transmitting user traffic between said user site and said network provider site over a backup connection carried over a wireless link when said broadband access connection is suffering from performance impairment;

monitoring integrity of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

switching said user traffic from said broadband access connection to a backup connection according to said fault signal;

filtering said user traffic at said user site on receipt of said fault signal for selecting, from said user traffic, overload traffic to be carried over said backup connection; and

merging said overload traffic back into said user traffic at said network provider site;

wherein said fault signal is generated in response to a degraded performance detected on said wireline link and said degraded performance may be any impairment selected from the group consisting of inadequate throughput, excessive bit error rate, excessive packet loss, excessive latency, and excessive jitter.

14. (Currently Amended) A method for protecting a wireline access link, comprising the steps of:

transmitting user traffic between a user site and a network provider site in a broadband access connection carried over said wireline link;

monitoring integrity of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

switching said user traffic from said broadband access connection to a backup connection according to said fault signal; and

switching back said user traffic from said backup connection to said broadband access connection once said fault signal has been cleared;

filtering said user traffic at said user site on receipt of said fault signal for selecting, from said user traffic, overload traffic to be carried over said backup connection; and

merging said overload traffic back into said user traffic at said network provider site.

15. (Original) The method of claim 13, wherein said fault signal indicates one of a failure, performance degradation and overload of said wireline link.

16. (Original) The method of claim 15, further comprising filtering said user

traffic on receipt of said fault signal for selecting high-priority traffic to be carried over said backup connection.

17. (Currently Amended) A method for protecting a wireline access link, comprising the steps of:

transmitting user traffic between a user site and a network provider site in a broadband access connection carried over said wireline link;

transmitting user traffic between said user site and said network provider site over a wireless link when said broadband access connection is suffering from performance impairment;

monitoring integrity of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

switching said user traffic from said broadband access connection to said wireless link according to said fault signal, and

adapting said user traffic to a capacity of said wireless link by discarding low priority data from said user traffic; and

filtering said user traffic at said user site on receipt of said fault signal for selecting, from said user traffic, overload traffic to be carried over said backup connection; and

merging said overload traffic back into said user traffic at said network provider site.

18.   (Canceled)

19.   (Currently Amended) The method of claim 17, wherein said step of adapting said user traffic to a capacity of said wireless link comprises buffering low priority data from said user traffic.

20.   (Currently Amended) The method of claim 15, further comprising filtering said user traffic at said network provider on receipt of said fault signal for selecting high-priority traffic to be carried to said user site over said backup connection.

21.   (Original) The method of claim 15, wherein said step of filtering comprises one of discarding and buffering low priority data from said user traffic.

22.   (Currently Amended) The method of claim 15, further comprising:

filtering said user traffic at said user site on receipt of said fault signal for selecting from said user traffic, high-priority traffic to be transmitted over said backup connection; and

filtering said user traffic at said network provider site on receipt of said fault signal for selecting high-priority traffic to be carried to said user site over said backup connection.

23. (Original) The method of claim 13, wherein said fault signal indicates an overload condition of said wireline link.

24. (Original) The method of claim 20, wherein an overload condition is recognized based on a measured throughput near wireline link capacity.

25. (Canceled)

26. (Canceled)

27. (Original) The method of claim 23, further comprising, at said network provider site: filtering said user traffic on receipt of said fault signal for selecting

said overload traffic; and routing said overload traffic to said user site over said backup connection.

28.   (Original) The method of claim 13, wherein said fault signal is generated based on signaling of link configuration or availability using the 802.3ad Ethernet link aggregation protocol.

29.   (Currently Amended) The method of claim 13, wherein said step of switching said user traffic from said broadband access connection to a backup connection according to said fault signal is based on signaling of link configuration or availability within the IETF RFC 1717/RFC 1990 Multi-link Point to Point protocol.

30.   (Previously Presented) The method of claim 13, wherein said fault signal is generated based on detection of absence of a signal within a time-out interval, or a failure to respond to an active health test condition.

31.   (Canceled)

32.   (Canceled)

33.   (Currently Amended)   A method for protecting a wireline access link, comprising the steps of:

transmitting user traffic between a user site and a network provider site in a broadband access connection carried over said wireline link;

transmitting user traffic between said user site and said network provider site over a wireless link when said broadband access connection is suffering from performance impairment;

monitoring integrity of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

switching said user traffic from said broadband access connection to said wireless link according to said fault signal; and

establishing said wireless link through signaling prior to said detection of said performance impairment.

34.   (Currently Amended) The method of claim 33, wherein said link performance parameters include available bandwidth on said wireline link.

35.   (Canceled)

36.   (Original)   The method of claim 13, further comprising maintaining said wireline link always available for traffic.

37.   (Currently Amended)   A method for protecting a wireline access link, comprising the steps of:

transmitting user traffic between a user site and a network provider site in a broadband access connection carried over said wireline link;

transmitting user traffic between said user site and said network provider site over a wireless link when said broadband access connection is suffering from performance impairment;

monitoring integrity of said wireline link and generating a fault signal upon detection of said performance impairment of said broadband access connection in dependence upon user configured threshold levels of link performance parameters;

switching said user traffic from said broadband access connection to said wireless link according to said fault signal; and

establishing said wireless link through signaling prior to said detection of said performance impairment.

38.   (Original)   The method of claim 17, further comprising maintaining said wireline link unavailable when traffic is switched over said wireless link.

39. (Original) The method of claim 38, further comprising maintaining said wireless line link unavailable when traffic is switched over said wireline link.

40. (Currently Amended) The method of claim 14, wherein said step of switching back said user traffic from said backup connection to said broadband access connection once said fault signal has been cleared comprises transmitting test data over said wireline link to determine recovery of said broadband access connection.

41. (Original) The method of claim 40, wherein said test data comprises one of low-priority user traffic and test probes.

42. (Canceled)

43. (Previously Presented) The method of claim 14, wherein said specific intervals increase progressively to reduce the impact of testing on traffic performance.

44. (Original) The method of claim 16, wherein said high priority traffic is

selected by means of policing or shaping low priority traffic at said user site when traffic presented exceeds the available upstream link capacity.

45. (Original) The method of claim 16, wherein said high priority traffic is selected by means of policing or shaping low priority traffic at said network provider site when traffic presented exceeds the available upstream link capacity.

46. (Currently Amended) The system of claim 1, wherein said performance impairment is any impairment selected from the group consisting of inadequate throughput, excessive bit error rate, excessive packet loss, excessive delay, and excessive jitter.

47. (Currently Amended) The method of claim 14, wherein said performance impairment is any impairment selected from the group consisting of inadequate throughput, excessive bit error rate, excessive packet loss, excessive delay, and excessive jitter.

48. (Currently Amended) The method of claim 17, wherein said performance impairment is any impairment selected from the group consisting of inadequate

throughput, excessive bit error rate, excessive packet loss, excessive delay, and excessive jitter.

49.   (Currently Amended) The method of claim 33, wherein said performance impairment is any impairment selected from the group consisting of inadequate throughput, excessive bit error rate, excessive packet loss, excessive delay, and excessive jitter.

50.   (Currently Amended) The method of claim 37, wherein said performance impairment is any impairment selected from the group consisting of inadequate throughput, excessive bit error rate, excessive packet loss, excessive delay, and excessive jitter.

51.   (New) The method of claim 17, wherein said step of adapting said user traffic to a capacity of said wireless link comprises identification of high priority data based on at least one criterion selected from the group consisting of: a source MAC address, a destination MAC address, an 802.1q VLAN ID, an 802.1q Ethernet priority marking, a source IP address, a destination IP address, and an IP class of service identifier.